



Annexure 1, 2 pages

Specifications of clean rooms/accessories and scope of Annual Maintenance Contract

1. Introduction

We have class 1K and 10K clean room facilities and other associated utilities at R&D Block-A & A2. Specifications of the clean rooms and clean room accessories are given in annexure-2. Annual Maintenance Contract (AMC) for the Upkeep of the clean room facilities and other associated utilities like plant room, air handling units, exhaust blowers, water chillers, air compressor etc., and associated semiconductor labs is to be placed. A detailed description of jobs to be carried out as part of the contract is given in Annexure-3.

2. Bidder qualifications

- 2.1. Bidder must have executed at least one AMC for a similar clean room facility in India during the last 5 years. The bidder should provide a list of such facilities with full contact details like name of the contact person, address, telephone number, email address.
- 2.2. RRCAT reserves the right to communicate with users, where bidder have executed an AMC of a clean room facility.
- 2.3. Due to the specialized nature of jobs to be carried out during the contract, the bidder should have technical personal in each category having qualifications as mentioned below:
 - 2.3.a. Supervisor: ITI or 12th pass with a minimum one year of experience working in the clean room and handling cylinders of nitrogen and hydrogen gases.
 - 2.3.b. Technician: 8th pass with minimum one year of experience working in the clean room and handling cylinders of nitrogen and hydrogen gases.
 - 2.3.c. Training/experience/diploma certificate should be submitted along with the quotation.

3. Bid evaluation criteria:

- 3.a. The bid will be evaluated on the basis of combined work mentioned in annexure - 3A to 3G. Partially quoted bid will be rejected.
- 3.b. Bidder shall be awarded work order on the basis of combined lowest price only. No splitting of the work order is allowed.

signature of the bidder, date and company seal



4. Scope of the work to be carried out during the contract period is given below:

- 4.a. Upkeep of class 1K, class 10K clean room 1 & 2 as per the details given in Annexure-3A.
- 4.b. Upkeep of the plant room as per the details given in Annexure-3B.
- 4.c. Upkeep of the Makeup Air Unit (MAU) for clean room 1& 2 as per the details given in Annexure-3C.
- 4.d. Upkeep of the Recirculating Air Handling (RAH) units for the clean room 1&2 as per the details given in Annexure-3D.
- 4.e. Upkeep of Gas room as per the details given in Annexure-3E.
- 4.f. Upkeep of semiconductor Labs as per the details given in Annexure-3F.
- 4.g. General maintenance of water chillers and maintenance of oil free compressor on quarterly basis as per the details given in Annexure-3G.

5. General conditions:

- 5.a. During the whole AMC period the facility has to run as per its full capabilities by ensuring the planned maintenance as mentioned in annexure-1&2.
- 5.b. In case of breakdown, onsite technical support should be provided within 24 hours to ensure a trouble-free operation of associated utilities of clean room like RAH, MUA, blowers, chilled water pumps and Air Compressor.
- 5.c. The cost of spare parts is not included in the AMC. RRCAT maintains a stock of spare parts and those will be provided to the bidder as and when required.
- 5.d. The clean room facility is kept under continuous operation round the clock mode throughout the year. It is therefore very important to carry out the AMC as per schedule. In view of this, the contractor should ensure a regular maintenance of the respective items without any break.
- 5.e. Bidder should certify that the technical personal having qualifications/experience as mentioned on item 2.3 will only be deployed for executing the AMC.

signature of the bidder, date and company seal



Annexure 1A, 1 page

Details of the system proposed to be taken under a maintenance contract
(To be issued with Enquiry Letter)

1.	Description of the equipment/machine/ Software	Up keep of class 1K and 10K clean room facilities, air handling units, exhaust blowers, water chillers, air compressor etc. and associated semiconductor labs as per annexure 3A to 3G.
2.	Date of purchase	Clean Room-1: March 2003/ One Crore Clean Room-2: Oct. 2014/ 78 lakh and other associated accessories (20 lakh) procured at different time as per annexure 3G.
3.	Nature of contract proposed (Delete which are not applicable)	AMC/Comprehensive AMC/AMC with resident manpower/ Comprehensive AMC with resident manpower
4.	Scope of services proposed in the contract (Attach a separate sheet, if required)	As per the attached annexures – 1,1A, 2, 3, 3A,3B,3C,3D,3E,3F,3G
5.	Procurement and replacement of these components are proposed as part of the contract. Price for the same may be mentioned separately in the quotation.	NA
6.	Price list of common spares which may be required to be replaced during the tenure required to be furnished by the bidder for acceptance of the bids.	Yes / No, RRCAT will provide the spare parts. (If yes, bidder has to provide price list of common spare parts (not consumables) and the rates shall be valid during the currency of the contract)
7.	Location of the machine	R&D Block-A, RRCAT, Indore
Signature of the bidder with company seal (Bidder to submit a duly signed (with company seal) copy of this document with the bid)		

signature of the bidder, date and company seal



General details of the clean rooms and clean room accessories

I. Specifications of Clean Room 1:

S. No.	Laboratory	Clean room Class	Floor area in m ²	No. of Doors/ Area in m ²	No. of Equipment Doors/ Area in m ²	No. of Viewing/ crash Panels/ area in m ²	Remarks, if any
1	Yellow Room	1K	13.5	1 /3.3	-	3/1.7	
2	Processing Lab	1K	18.0	1/1.80	1/3.3	4/2.85	
3	MOVPE Lab	10K	36.0	1/ 2.75	1/5.48	7 /4.50	
4	PECVD Lab	10K	13.5	1 /2.75	1 /5.48	1 /1.66	
5	Clean corridor	10K	21.0	1 /1.65	1 /3.3	2/1.41, 2w/4.65	W=window
6	Change Room1&2	10K	17.0	4/ 7.67	-	-	
7	Air Shower 1&2	10K	1.5	4 /7.48	-	-	
8	Plant room-1	Normal Area	125.0				

II. Specifications of Clean Room 2:

S. No.	Laboratory	Clean room Class	Floor area in m ²	No. of Doors/ Area in m ²	No. of Equipment Doors/ Area in m ²	No. of Viewing/crash Panels/ Area in m ²	Remarks, if any
1	Yellow Room	10K	35.0	1 /1.80	1 /3.88	2 /3.75	
2	Processing Lab	10K	95	2 /3.62	1 /3.88	4 /7.52	
3	Clean corridor	10K	21.0	2 /3.61	2 /7.32	8w /8.12	W=window
4	Change room	10K	17.0	2/4.12	-	-	
5	Air Shower	10K	0.5	2 /3.1	-	-	
6	Plant room-2	Normal Area	105.0				

III. Specifications of Clean Room accessories:

S. No.	Name of Item	Quantity (Nos)	Remarks
1	Class 100 Clean benches	2	Cleaning with dry cloth, cleaning and replacement of filters. Filters will be provided by RRCAT, if required.
2	Class 100 Clean Tent	1	Cleaning with dry cloth, cleaning and replacement of filters. Filters will be provided by RRCAT, if required.
3	Clean room accessories like chemical bench, air curtain, pass box, garment rack, show rack, equipment rack etc.	15	Cleaning with dry cloth

IV. General maintenance of chillers and oil free compressor:

As per attached annexure 3G.

signature of the bidder, date and company seal



Annexure-3 (Schedule of maintenance activities)

Sl. No.	List of works to be executed as part of AMC	Details given in Annexure#
1	Upkeep of class 1K, class 10K clean room 1 & 2 on daily basis	3A
2	Upkeep of the plant room on daily basis	3B
3	Upkeep of the Makeup Air Unit (MAU) for clean room 1& 2 on weekly basis	3C
4	Upkeep of the Recirculating Air Handling (RAH) units for clean room 1&2 on monthly basis	3D
5	Upkeep of Gas room on daily basis	3E
6	Upkeep of semiconductor Labs on weekly basis	3F
7	General maintenance of water Chillers 8 nos. Capacity of chillers 15TRx1, 3TRx1, 1.5TR x6 and an Oil free compressor on quarterly basis	3G

signature of the bidder, date and company seal



Annexure-3A

Job Id-Clean#1

- Sr. No. Upkeep of class 1K, class 10K clean rooms of 120 Sq. Mts. Floor area (Clean room-1 on daily basis)**
- 3A.1.1 Monitoring of clean room temperature, relative humidity and differential pressure.
- 3A.1.2 Vacuum cleaning of the clean room floor and subsequent moping
- 3A.1.3 Glass windows and glass doors cleaning
- 3A.1.4 Clean room tables and racks cleaning
- 3A.1.5 Vacuum cleaning and Moping of clean corridor
- 3A.1.6 Assistance during the experimental work inside clean rooms (like sample box preparation, inter laboratory transfer of tools, samples, and other small items)

Job Id-Clean#2

- Sr. No. Upkeep of class 10K clean rooms of 170 Sq. Mts. Floor area (Clean room-2 on daily basis)**
- 3A.2.1 Monitoring of clean room temperature, relative humidity and differential pressure.
- 3A.2.2 Vacuum cleaning of the clean room floor and subsequent moping
- 3A.2.3 Glass windows and glass doors cleaning
- 3A.2.4 Clean room tables and racks cleaning
- 3A.2.5 Vacuum cleaning and Moping of clean corridor
- 3A.2.6 Assistance during the experimental work inside clean rooms (like sample box preparation, inter laboratory transfer of tools, samples, and other small items)

Note: Job Id-Clean#1 and Job Id-Clean#2 are to be executed simultaneously on daily basis

signature of the bidder, date and company seal



Annexure-3B

Job Id-Plant Room#1

Sr. Upkeep of the plant room on daily basis

No.

- 3B.1.1 Brooming and moping of the floor and cleaning the dustbins
- 3B.1.2 Checking 66TR Chiller operation and note down water temperature
- 3B.1.3 Note down reading of temp and humidity on control panel
- 3B.1.4 Checking the operation of MOVPE water chiller

Job Id-Plant Room#2

Sr. Upkeep of the plant room on daily basis

No.

- 3B.2.1 Brooming and moping of the floor and cleaning the dustbins
- 3B.2.2 Note down reading of temp and humidity on control panel
- 3B.2.3 Checking the operation of humidifiers including water flow/level (2 Nos)

Note: Job Id-Plant Room#1 and Job Id-Plant Room#2 are to be executed simultaneously

signature of the bidder, date and company seal



Annexure-3C

Sr. No.	Job Id-MAU#1 Upkeep of the Make Up Air (MUA) Clean room -1 on weekly basis, 1 Unit
3C.1.1	Pre filter cleaning by compressed air & water, and changing
3C.1.2	fine filter cleaning/changing
3C.1.3	Vacuum cleaning and moping of inner area
3C.1.4	motor belt checking/ changing
3C.1.5	Oiling and greasing of motor

Sr. No.	Job Id-MAU#2 Upkeep of the Make Up Air (MUA) Clean room -2 on weekly basis, 2 Units
3C.2.1	Pre filter cleaning/changing
3C.2.2	Vacuum cleaning and moping of inner area

Note: Job Id-MAU#1 and Job Id-MAU#2 are to be executed simultaneously

Compressed air and water will be provided by RRCAT

signature of the bidder, date and company seal



Annexure-3D

Job Id-RAH#1

- Sr. No.** Upkeep of the Recirculation Air Handeling (RAH) clean room 1 on monthly basis, 2 units
- 3D.1.1 Pre filter cleaning/changing
- 3D.1.2 Fine filter cleaning/changing
- 3D.1.3 Vacuum cleaning and moping of inner area
- 3D.1.4 Motor belt checking/ changing
- 3D.1.5 Oiling and greasing of motor

Job Id-RAH#2

- Sr. No.** Upkeep of the Recirculation Air Handeling (RAH) clean room 2 on monthly basis, 2 units
- 3D.2.1 Pre filter cleaning/changing
- 3D.2.2 fine filter cleaning/changing
- 3D.2.3 Vacuum cleaning and moping of inner area
- 3D.2.4 Motor belt checking/ changing
- 3D.2.5 Oiling and greasing of motor

Note: Job Id-RAH#1 and Job Id-RAH#2 are to be executed simultaneously

signature of the bidder, date and company seal



Annexure-3E

Sr. No.	Job Id-Gas Room #1 Upkeep of Gas room on daily basis
1E.1	Shifting of gas cylinders from yard to the gas rooms & back to ensure un interrupted supply of gas for MOVPE machine as well as for other semiconductor labs.
1E.2	Brooming and moping of the floor and cleaning the dustbins

signature of the bidder, date and company seal



Annexure-3F

Sr. No.	Job Id-Lab #1.
3F.1	Upkeep of the Semiconductor Labs on weekly basis Brooming and moping of the floor of labs (9 labs) and cleaning the dustbins
3F.2	Windos & door cleaning and webcob removal of labs (9 labs)
3F.3	Cleaning of table and racks of labs (9 labs)
3F.4	Instrument and nitorgen gas cylinder movement between the labs
3F.5	Inter laboratory transfer of equipments and chemicals
3F.6	Clean room garment washing and drying

signature of the bidder, date and company seal



Annexure-3G

Sr. No.	Job Id-Gen Maint #1 General maintenance of Chillers and Maintenance of oil free compressor on quarterly basis
3G.1	Monitoring of Temperature, pressure and water level of chiller of water Chillers 8 nos. Capacity of chillers 15TRx1, 3TRx1, 1.5TR x6. Monitoring of air pressure of oil free aircompressor. The capacity of compressor is 5 HP, 1 No. (General maintenance like dusting and cleaning of filter, chilled water tank and cooling coil, changing of DM water and maintenance of oil free compressor (Make- Anest Iwata, Cap-220 lits, Max. Working pressor-12 bar, Motor-ABB, Make, 3.7 KW, RPM-1436)
3G.2	Monitoring of 8 Nos of exhaust blowers and 3 Nos of exhaust fans (Make: Enni-con; RPM-2800; 1.5KW, Qty- 3 Nos, Make: Enni-con; RPM-2850; 2.5KW, Qty- 3 Nos, Make: Crompton Greaves; RPM-2875; 3.7KW, Qty- 2 Nos and Exhaust Fans,Qty- 3 Nos.) Checking the motors for noise, alignment if required and greasing.
3G.3	Checking the 3 chilled water pump operation daily and their maintenance line, checking the motors for noise, alignment if required and greasing. (Make: Kirloskar/ABB; HP-25; RPM-2920; Qty-2 Nos. and Make: Kirloskar; 1.1 KW; RPM-2850; Qty-1 No.)

Note: In case of any breakdown, onsite technical support should be provided within 24 hours to ensure a trouble-free operation of the clean rooms and associated utilities.

signature of the bidder, date and company seal



Annexure 4 (5 pages)

Standard Terms and Conditions

1. Payment terms

Payment shall be released on pro-rata basis, and on (Monthly/Quarterly/Half-yearly/Yearly) basis within **thirty days** after completion of the scheduled maintenance as per the AMC and submission of bill. The contractor shall submit the following documents to the paying authority for releasing the payment.

- a) Invoice / bill in duplicate duly pre-receipted on one-rupee revenue stamp.
- b) A certificate from the user that the maintenance under the AMC as per the schedule has successfully and satisfactorily been executed by the contractor during the period for which payment is claimed.

2. Income Tax

The income tax and TDS on GST thereon, as applicable, will be deducted from the payment as per the existing rules.

3. Penalty, Termination and Confidentiality clause

- i. Payment will not be made if any of the regular maintenance visits is not made or the visits are not made in time.
- ii. In case of non-performance of work/service/maintenance covered under the AMC, no payment shall be made and penalty shall be levied.
- iii. If the emergency call is not attended to in time and/or if the machine fails to run as per its full capabilities as mentioned in the manufacturer's product specifications, no payment will be made and penalty will be levied.
- iv. Penalty: Technicians should complete the assigned jobs as per the schedule described in annexures No. 3A to 3G. If assigned jobs are not completed in time then a penalty will be imposed at the rate of 1% of the quarterly AMC rates for each violation. The maximum penalty in a quarter can be up to 10% of the quarterly AMC rates.
- v. Recovery of the penalty shall be made from the settlement of the contractor's bill for the corresponding quarter.
- vi. RRCAT may initiate the action for termination of the AMC if the contractor disregards any of the essential conditions or obligations of AMC and does not remedy such action within five (05) working days following written notification of violation. If three successive warnings for repair of faults defined as emergency (each after 05 working days) are not honoured and the fault is not rectified, RRCAT has right to terminate the AMC after giving one month notice to the contractor.
- vii. In case of breach of any conditions of the contract and for all type of losses caused, the contractor shall fully indemnify the office of RRCAT for such losses.

signature of the bidder, date and company seal



- viii. In cases of negligence in performing duties as stipulated in the Annexure, or as agreed in the contract by the bidder, RRCAT shall be at liberty to get the maintenance or repairing work done by any other party at the risk and cost of service provider.
- ix. The powers of RRCAT under this condition shall in no way affect or prejudice the powers in certain events to terminate the contract vested in him.
- x. Contracts may be terminated for following reasons:
- Impossibility of Performance
 - Fraud, Misrepresentation or Mistake
 - Illegality
 - Breach of Contract
 - Prior Agreement
 - Equipment beyond repair / unserviceable
- xi. Any information identified as 'proprietary' in nature by the disclosing party shall be kept strictly confidential by the receiving party and it shall not be disclosed to any third party without the prior written consent of the original disclosing party.
- xii. Under 'Restricted information categories' of section 18 of the Atomic Energy Act 1962 and the official secrets Act 1923, any contravention of the above-mentioned provision by the contractor, subcontractor, consultant, adviser or the employee of the contractor will invite personal consequences under the aforesaid legislation.
- xiii. The contractor shall not use RRCATs' name for any publicity purpose through public media like press, radio, television or through internet without prior written permission of RRCAT.

4. General terms and conditions

4.1 Validity of the contract

The Annual Maintenance Contract shall be for a period of one (01) year and it may be extended on yearly basis up to maximum two (02) years subject to the satisfactory performance and at the same rates and same terms and conditions.

4.2 Sub-Contract

The contractor shall clearly indicate any work intended to be sub-contracted to any other party. RRCAT will permit the sub-contracting only if it is satisfied with the capability of the sub-contractor. The contractor will be solely responsible for all the operations carried out by the sub-contractor, including the inspection.

signature of the bidder, date and company seal



- 4.3 RRCAT will report that fault on telephone or E-mail to the contractor.
- 4.4 The contractor shall maintain a consolidated logbook wherein the corrective / preventive maintenance undertaken by the contractor shall be entered and the same shall be countersigned by the user. The logbook shall be kept at RRCAT.
- 4.5 Replacement of any part should be done with the approval of RRCAT authorized person and a record is to be maintained in the logbook. Spare parts will be provided by RRCAT, as and when required.
- 4.6 The contractor shall have to arrange all the necessary tools, tackles, set-up and qualified manpower required for carrying out the entire work. The responsibility of lodging / boarding, transport etc. for contractor's personnel shall lie with the contractor.
- 4.7 The work is to be carried out by experienced technical personnel only at RRCAT site. The safe working of the persons at work will be the responsibility of the contractor.

4.8 Safety Aspects of the Contracts

The contractor shall take all necessary precautions for the safe implementation of the contract. RRCAT shall not be liable for any injury to the contractor's representatives or damage to any equipment during execution of the contract.

It shall be the responsibility of the contractor to ensure the deployment of suitably trained manpower, use of proper and relevant protection equipment/kit, to possess valid license for the use of equipment (where applicable), and to have insurance cover for the staff involved in the contract. The contractor shall have full liability for compensation in case of any death or injury of a worker during the implementation of the contract. RRCAT shall have no liability for the same.

4.9 Qualification level of service personnel

Service personnel attending the contract shall be as under:

- 4.10.1 Supervisor: ITI or 12th pass with minimum six months of experience working in the clean room and handling cylinders of nitrogen and hydrogen gases.
- 4.10.2 Technician: 8th pass with minimum six months of experience working in the clean room and handling cylinders of nitrogen and hydrogen gases
- 4.10.3 Number of workers: From past experience minimum two persons are required on daily basis. Further, bidder is required to depute additional technicians occasionally after considering the requirements, nature of the work and the experience of deployed technicians.

signature of the bidder, date and company seal

(Annexure 4, page 3 of 5)



4.10 Inspection and testing

- (a) **General-** Responsibility of ensuring the quality of workmanship specified in this AMC will be with the contractor. RRCAT in general will have the role of verifying the quality control measures taken by the contractor. Testing documents and records generated by the contractor shall be handed over to RRCAT.
- (b) **Acceptance Testing-** After any major maintenance work, endurance test shall be carried out in the presence of the contractor representative, for at least twelve hours at a stretch to check its continuous functioning without any failure / break-down.

4.11 Completion Report and payment

A completion report showing details of maintenance activities carried out in last quarter shall be submitted certifying that the equipment have been serviced as per the terms and conditions of the AMC. The contractor may send a proposal for the extension of the AMC indicating RRCAT's contract reference number and date of the consideration well before the expiry of the AMC as mention in item 4.1.

4.12 Force Majeure

A Party shall not be considered to be in default or breach of this Agreement, and shall be excused from performance or liability for damages to any other party, if and to the extent it shall be delayed in or prevented from performing or carrying out any of the provisions of this Agreement, arising out of or from any act, omission, or circumstance by or in consequence of any act of God, labor disturbance, sabotage, failure of suppliers of materials, act of the public enemy, war, invasion, insurrection, riot, fire, storm, flood, ice, earthquake, explosion, epidemic, breakage or accident to machinery or equipment or any other cause or causes beyond such Party's reasonable control, including any curtailment, order, regulation, or restriction imposed by governmental, military or lawfully established civilian authorities, or by making of repairs necessitated by an emergency circumstance not limited to those listed above upon the property or equipment of the Party or property or equipment of others which is deemed under the Operational Control of the Party.

A **Force Majeure** event does not include an act of negligence or Intentional Wrongdoing by a Party. Any Party claiming a Force Majeure event shall use reasonable diligence to remove the condition that prevents performance and shall not be entitled to suspend performance of its obligations in any greater scope or for any longer duration than is required by the Force Majeure event. Each Party shall use its best efforts to mitigate the effects of such Force Majeure event, remedy its inability to perform, and resume full performance of its obligations hereunder.

Company Seal, signature of the bidder and date

(Annexure 4, page 4 of 5)



4.13 Jurisdiction

Each of the parties hereto irrevocably agrees that the courts of Indore shall have jurisdiction to hear and determine any suit, action or proceeding, and to settle any disputes, which may arise out of or in connection with this Agreement and, for such purposes, irrevocably submits to the jurisdiction of such courts.

4.14 Paying authority

The paying authority is Pay & Accounts Officer, Raja Ramanna Centre for Advanced Technology (RRCAT), PO: RRCAT, Indore (MP) Pin – 452013.

signature of the bidder, date and company seal

(Annexure 4, page 5 of 5)

